

# (12) UK Patent Application (19) GB (11) 2 225 957 (13) A

(43) Date of A publication 20.06.1990

(21) Application No 8925035.1

(22) Date of filing 06.11.1989

(30) Priority data

(31) 04019

(32) 07.11.1988

(33) SE

(51) INT CL<sup>3</sup>

A61M 35/00

(52) UK CL (Edition K)

A5R RCX

(56) Documents cited

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(58) Field of search

UK CL (Edition J) A5R RCX

INT CL<sup>4</sup> A61M

(71) Applicant

Per Granberg

Polvagen 7, S-141 33 Huddinge, Sweden

(72) Inventor

Per Granberg

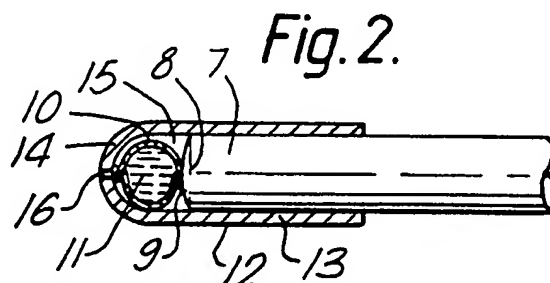
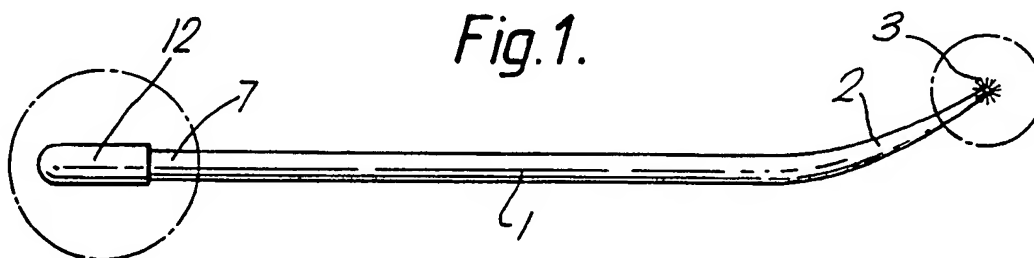
(74) Agent and/or Address for Service

J A Kemp and Co

14 South Square, Gray's Inn, London, WC1R 5EU,  
United Kingdom

(54) A dental tool

(57) The invention relates to a dental tool for applying locally into the mouth-cavity a quantity of fluid which may take the shape of a liquid, a paste or a gel, comprising a stick (1), one end (2) of which is formed as an applicator (3). The other end (7) the stick is provided with a container (11) of said fluid placed in a first tight inner casing (10). In its turn said first inner casing with said container of said fluid is enclosed in a second outer casing (12) which in its tip part (14) is provided with at least one aperture or slit (16). The outer casing is displaceable inwardly towards the stick and/or the outer casing is made of a material so resilient as to be easily deformed when the outer casing forcibly is pressed against a first support. The first inner casing is of so small bursting strength as to be crushed between the tip of the outer casing and the end wall (8) of the stick in said other end, when the outer casing is displaced as mentioned and/or is deformed, whereby the fluid let out of the first casing may be pushed out through the aperture or slit in the tip of the outer casing.



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Fig. 1.

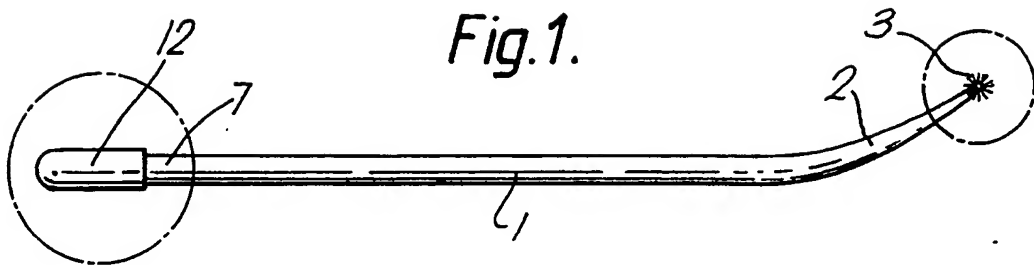


Fig. 2.

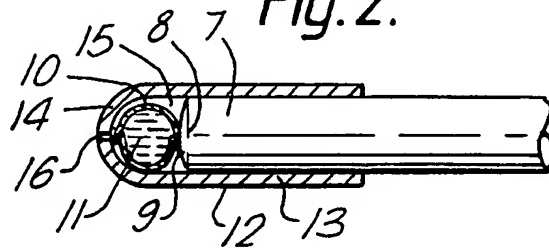


Fig. 3.

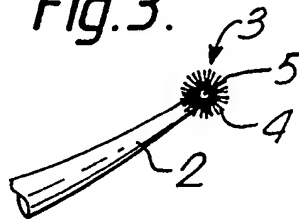
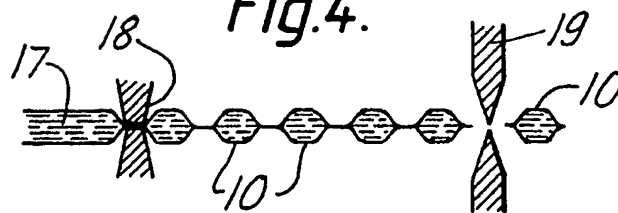


Fig. 4.



## A DENTAL TOOL

### TECHNICAL FIELD

5 The invention relates to a dental tool for the application locally in the mouth-cavity, of a dose of a fluid, which may be a liquid, a paste or a gel, comprising a stick having one end shaped as an applicator.

### BACKGROUND OF THE INVENTION

10 Dentists use many various kinds of liquids, pastes or gels which are applied locally, in, upon or between the teeth or more exceptionally in other places in the mouth-cavity. It may concern liquids, such as phosphoric acid used for pre-treatment of teeth before the attachment by glueing of a crown or a facing, liquid plastic material (bonding),  
15 anti-carries agents, such as e.g. gels containing fluorine compounds, blood quenching agents, such as solutions of iron chloride or iron sulphate, or liquids, pastes or gels containing bacteria tinting agents. It is usual to apply said liquids, pastes or gels by means of a brush or pencil. The liquid, paste or gel is normally kept in a  
20 bottle, jar or tube, from which a suitable dose is dropped or else transferred onto a tray before the dentist by means of the pencil applies the agent in the proper place in the mouth of the patient. Thus the technique conventionally used is prolix and i.a. involves sterilisation problems.

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### BRIEF DISCLOSURE OF THE INVENTION

The object of the invention is to offer an improved dental device of the kind mentioned in the preamble. The invention is characterised by the features stated in the following claims. Other objects as well as  
30 characterising features and aspects of the invention will appear from the following description of a preferred embodiment.

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## BRIEF DESCRIPTION OF THE DRAWINGS

In the following description of a preferred embodiment reference will be made to the enclosed drawing figures, of which

- 5     Fig. 1    is a lateral view of the device according to the invention,
- Fig. 2    is a longitudinal cross-sectional view on a larger scale of  
                 the encircled left-hand detail of Fig. 1,
- 10    Fig. 3    is a view on a larger scale of the right-hand detail  
                 encircled in Fig. 1, and
- Fig. 4    diagrammatically illustrates a moment of the manufacture of a  
                 component forming part of the dental device in question.

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## DESCRIPTION OF A PREFERRED EMBODIMENT

1 designates a stick of a length of 9 cm, which in the embodiment shown consists of wood, but which also may be made of a plastic or a composite material containing e.g. cellulose fibres and plastic material. One end 2 is bent and has a very small pencil 3 at its tip. The pencil 3, Fig. 3, consists of 1 mm long nylon straws 4 extending radially outwards from a small "pearl" 5 of epoxy glue at the extreme tip of the end 2 of the stick 1. The pearl 5 has been applied as a droplet, and then electrostatically loaded nylon straws have been attached to said droplet, while the stick 1 is earthed. The nylon straws 4 stick to the droplet 5 and remain permanently attached thereto when the epoxy glue is cured. In the invention, the pencil 3 is meant to be used as an applier.

30    In the other end - the rear end 7 - the stick 1 has a squarely cut end face 8, upon which a fastening agent 9 may be present. Pulled over the back end 7 is a cap 12 having a cylindrical part 13, the inner diameter of which substantially corresponds to the thickness of the stick 1, and having a substantially semispherical top portion 14. As is shown in Fig. 2 a pad 10 is placed in the space 15 between the top portion 14 of the cap 12 and the end face 8 of the stick 1. The pad 10

constitutes the first casing mentioned in the claims and serves as a container 11 of the fluid in the form of a liquid, a paste or a gel, which is to be applied by means of the pencil 3. The casing 10 is completely closed, but is of a small bursting strength. In order to get the desired small bursting strength, it consists of a thin film of plastic material, such a polyethylen. The casing 12 which constitutes the second casing mentioned in the claims, is at the extreme forward end of the top portion provided with a slit 16 which normally is closed. Preferably the cap 12, too, is made of plastic material, but may also be made of other material.

Fig. 4 shows diagrammatically how the pads 10 may be manufactured out of a thin plastic hose 17. The hose is partitioned into pads 10 by means of a sealing tool 18 in a manner known per se and is then cut into separate pads 10 by means of knives 19 or similar. The pads are then placed one by one into the caps 12 before these are thread upon the stick 1. Where the stick are provided with fastening agents 9, the pads may instead be applied against the fastening agent 9 at the end of the stick before the cap 12 is put on.

In use, the stick 1 is pressed with its back end against a firm support. Then the whole of the cap is displaced somewhat farther inwards over the stick 1, and the top portion 14 may be slightly deformed. Due to the displacement of the cap or to the deformation of the top portion 14 or to the combination of said displacement and said deformation the pad is subjected to so great pressure stresses that the wall of the pad or the seal of the pad at its ends bursts. Then the liquid, the paste or the gel 11 is let out into the space 15 and is pressed out through the slit 16 which is widened in connection therewith. In this manner the liquid, the paste or the gel is obtained as a droplet or clot upon the firm support, against which the top is pressed down, preferably a tray of the kind used by dentists. Then the dentist turns over the stick and wets the pencil 3 in said droplet or clot and can immediately thereupon apply the fluid in question into the mouth of the patient.

It should be understood that the invention is not restricted to the embodiment shown. For instance, the first casing 10 may have an other configuration than a pad. Thus various capsules or ampoules are possible in this connection. Furthermore, it may be possible to manufacture the second casing, being a cap in the shown embodiment, in situ by dipping the stick end into a plastic mass, in accordance with the principle of dip dressing of plastic articles, and simultaneously forming an opening in the top of the second casing thus obtained. In principle, the cap 12 may be made of a stiff material, if it is displaceable upon the stick 1, the first inner casing being crushed by the displacement of the outer casing. Therefore, the scope of the patent protection is limited merely by the following patent claims.

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## CLAIMS

1. Dental tool for applying locally in the mouth-cavity a quantity of a fluid which may take the shape of a liquid, a paste or a gel, comprising a stick (1) one end (2) of which is formed as an applicator (3), c h a r a c t e r i s e d in that the stick in the range of the opposite end (7) is provided with a container (11) of said fluid placed in a first tight inner casing (10), in that said first inner casing with said container of said fluid is placed in a second outer casing (12), which in its top part (14) is provided with at least one aperture or slit (16), in that the outer casing is displaceable inwardly towards the stick and/or is manufactured of a material which is so resilient as to be easily deformed when the outer casing forcibly is pressed against a firm support, and in that the first inner casing is of such small bursting strength as to be crushed between the top of the outer casing and the end wall (8) of the stick in said other end when the outer casing is displaced in said manner and/or is deformed, whereby the fluid let out of the first casing can be pressed out through the aperture or slit in the top of the outer casing.
2. Device as claimed in claim 1, c h a r a c t e r i s e d in that the second casing consists of a cap (12) of plastic material which is provided on the stick in the range of said other end of the stick which is blunt, said first casing with said container of said fluid being placed in the space (15) between the top part (14) of the stick and the blunt end (8) of the stick.
3. Device as claimed in claim 1, c h a r a c t e r i s e d in that the aperture or slit (16) in the top part (14) of the outer casing is normally closed but may be widened when abutting the top against a firm support.
4. Device as claimed in claim 1, c h a r a c t e r i s e d in that the first casing is shaped as a container which may take the shape of a capsule or a pad.

5. Device as claimed in claim 4, characterised in that the container (10) holding said fluid (11) is attached to the second blunt end (8) of the stick by means of a fastening agent (9).

5 6. Device as claimed in claim 1, characterised in that the wall thickness of the first inner casing (10) is substantially lesser than that of the second outer casing (12).

10 7. A dental tool constructed and arranged substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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